

regular leader. Immediately above the ground it divides into a number of smaller stems and branches, which either sweep along the ground, their extremities pointing upwards, or rise at once at an angle of  $30^{\circ}$  to  $45^{\circ}$ , according as the neighbours or the locality have permitted it to expand. Very rarely—amongst countless thousands I did not see above one or two examples—one tree makes an attempt to grow straight and throws up a single stem, but the failure of attaining size or elevation shows in these instances the creeping, true habit of the tree. The height attained is rarely above 5 or 6 feet, the diameter of the largest trees being from 20 to 25 feet; though this size is rare, and the appearance is so regular, that in looking over an extensive level planted with it, it is quite as even as the surface of a gorse cover.

The foliage in form and colour resembles that of *P. uncinata*, but the spiculæ are shorter, though standing out in the peculiarly rigid manner of that species. The cones are small, dark-coloured, and differ from both *P. sylvestris* and *P. uncinata*.

From the localities it inhabits it must be placed very high in the series, by the side of *P. Cembra* and *P. uncinata*. I have been the more particular in describing this singular species, in order to guard those who may not have the opportunity of seeing it *in situ* from confounding it, as so many who ought to know better have done, with the stunted individuals of *P. Cembra*, *P. sylvestris* and *P. uncinata*, which are always found at the summit of their respective zones in the high Alps and Pyrenees, and have been called and compiled under the general name of *Pumilio*.

As to the æconomical uses of this tree, it is clear they amount to very little, its wood being only used for inlaying for furniture, such as parts of chairs and the like. To those, however, who possess extensive parks, by planting them fifteen feet apart, and taking care of them during their early growth, they would be curious and useful covers for game.

XII.—*Diagnoses Algarum novarum a cl. Dre. Ferdinand Krauss in Africâ Australi lectarum, auctore Dno. HERING, Stuttgartiensi*.\*

*Conferva natalensis*, Hering. Pilis simplicibus tenuissimis, articulis diametro sesquolongioribus, superioribus æqualibus. *Conferva implexa*, Dillw. proxima. Port Natal.

*Dasya tenella*, Hg. Fronde continua, tereti, vage ramosa, ramulis bipinnatis, divaricatis.

\* Communicated by Mr. Daniel Cooper.

regular leader. Immediately above the ground it divides into a number of smaller stems and branches, which either sweep along the ground, their extremities pointing upwards, or rise at once at an angle of  $30^{\circ}$  to  $45^{\circ}$ , according as the neighbours or the locality have permitted it to expand. Very rarely—amongst countless thousands I did not see above one or two examples—one tree makes an attempt to grow straight and throws up a single stem, but the failure of attaining size or elevation shows in these instances the creeping, true habit of the tree. The height attained is rarely above 5 or 6 feet, the diameter of the largest trees being from 20 to 25 feet; though this size is rare, and the appearance is so regular, that in looking over an extensive level planted with it, it is quite as even as the surface of a gorse cover.

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*Dasya tenella*, Hg. Fronde continua, tereti, vage ramosa, ramulis bipinnatis, divaricatis.

\* Communicated by Mr. Daniel Cooper.

Frons vix uncialis, crassitie capillari, hyalina; granula angulata, coccinea, in fronde hyalina seriatim digesta; ad Port Natal, sterilis.

222\*. *Bryopsis setacea*, Hg. Pilis setaceis, subramosis, apice plumosis.

Fila tenacia, nitida, 2—3-pollicaria, setacea, simplicia vel rarius ramulo laterali instructa, apice ramentis brevibus, simplicissimis, lanceolato-pinnata. Color obscurè viridis, chartæ arcuè adhæret.

*Bryops. Balbianæ* proxima. *Hab.* ad Port Natal Point, Africæ meridionalis, scopulis littoralibus insidens.

*Caulerpa filiformis*, Hg. Frondibus planis, linearibus, subdichotomis, integerrimis.

Surculus cylindricus, filiformis, stramineus, internè emittens radices fibrosas, fasciculatas; frons spithamæa, adscendens, basi cylindrica, annulato-rugosa, deinde plana, linearis, integerrima, subdichotoma, lineam lata; color gramineus, substantia membranacea.

Synon. *Amphibolis filiformis*, Sch.

Var.  $\beta$ . Fronde latiore ligulata.

Var.  $\gamma$ . Fronde brevior palmata. Forsan distincta species *Caulerpa palmata* nominanda.

Ad Cape Lagullas, Africæ meridionalis, in arena repens.

*Aspidium ericoides*, Hg. Fronde tereti, continua, filiformi, ramosa; ramentis brevibus, subarticulatis, subulatis, densè imbricatis vestita.

Radix callus exiguus, frons spithamæa, teres, ramosa, pyramidata, ramenta obtusiuscula, zonis obscurioribus notata.

*Hab.* ad Port Natal. Sub *Rhodomela ericoides* in collectione signata.

*Sphærococcus (Chondrus) scutellatus*, Hg. Fronde compressa, dichotoma, segmentis linearibus; capsulis sphaericis in margine discoque ramulorum sessilibus, scutellatis.

Habitus *Sphæroc. crispus* var. *linearis*; frons cartilaginea, bipollicaris, vix lineam lata, segmentis superioribus cuneatis, obtusis; color exsiccati atro-purpureus.

*Sphærococcus (Gigartina) nodiferus*, Hg. Fronde cartilaginea, tereti, subdichotoma, segmentis irregulariter dentatis, obtusis, dentibus apice capsuliferis.

Color purpureus, frons crassiuscula.

Ad Port Natal, spec. manca.

*Sphærococcus (Gelidium) aculeatus*, Hg. Fronde cartilagineo-cornea, ramosa, verticillato-aculeata.

Radix callus exiguus, frons cartilagineo-cornea, 4—6-pollicaris, internè teretiuscula, nuda, mox bi- vel trichotoma, lineam crassa, compressa, vel tri- aut quadrangularis, aculeata; aculei oppositi, terni aut quaterni verticillati, lineam longi, basi dilatati, subu-

\* The numbers prefixed to the species refer to the numbers in Dr. Krauss's Fasciculi of Natal Specimens. A series of the species here described has been forwarded to the Herbarium of the Botanical Society of London, where they may be consulted on application.



Frons vix uncialis, crassitie capillari, hyalina; granula angulata, coccinea, in fronde hyalina seriatim digesta; ad Port Natal, sterilis.

222\*. *Bryopsis setacea*, Hg. Pilis setaceis, subramosis, apice plumosis.

Fila tenacia, nitida, 2—3-pollicaria, setacea, simplicia vel rarius ramulo laterali instructa, apice ramentis brevibus, simplicissimis, lanceolato-pinnata. Color obscurè viridis, chartæ arctè adhæret.

*Bryops. Balbianæ* proxima. *Hab.* ad Port Natal Point, Africæ meridionalis, scopulis littoralibus insidens.

*Caulerpa filiformis*, Hg. Frondibus planis, linearibus, subdichotomis, integerrimis.

Surculus cylindricus, filiformis, stramineus, infernè emittens radices fibrosas, fasciculatas; frons spithamæa, adscendens, basi cylindrica, annulato-rugosa, deinde plana, linearis, integerrima, subdichotoma, lineam lata; color gramineus, substantia membranacea.

Synon. *Amphibolis filiformis*, Sch.

Var.  $\beta$ . Fronde latiore ligulata.

Var.  $\gamma$ . Fronde brevior palmata. Forsan distincta species *Caulerpa palmata* nominanda.

Ad Cape Lagullas, Africæ meridionalis, in arena repens.

*Aspidium ericoides*, Hg. Fronde tereti, continua, filiformi, ramosa; ramentis brevibus, subarticulatis, subulatis, densè imbricatis vestita.

Radix callus exiguus, frons spithamæa, teres, ramosa, pyramidata, ramenta obtusiuscula, zonis obscurioribus notata.

*Hab.* ad Port Natal. Sub *Rhodomela ericoides* in collectione signata.

*Sphærococcus (Chondrus) scutellatus*, Hg. Fronde compressa, dichotoma, segmentis linearibus; capsulis sphaericis in margine discoque ramulorum sessilibus, scutellatis.

Habitus *Sphæroc. crispus* var. *linearis*; frons cartilaginea, bipollicaris, vix lineam lata, segmentis superioribus cuneatis, obtusis; color exsiccati atro-purpureus.

*Sphærococcus (Gigartina) nodiferus*, Hg. Fronde cartilaginea, tereti, subdichotoma, segmentis irregulariter dentatis, obtusis, dentibus apice capsuliferis.

Color purpureus, frons crassiuscula.

Ad Port Natal, spec. manca.

*Sphærococcus (Gelidium) aculeatus*, Hg. Fronde cartilagineo-cornea, ramosa, verticillato-aculeata.

Radix callus exiguus, frons cartilagineo-cornea, 4—6-pollicaris, infernè teretiuscula, nuda, mox bi- vel trichotoma, lineam crassa, compressa, vel tri- aut quadrangularis, aculeata; aculei oppositi, terni aut quaterni verticillati, lineam longi, basi dilatati, subu-

\* The numbers prefixed to the species refer to the numbers in Dr. Krauss's Fasciculi of Natal Specimens. A series of the species here described has been forwarded to the Herbarium of the Botanical Society of London, where they may be consulted on application.

Frons vix uncialis, crassitie capillari, hyalina; granula angulata, coccinea, in fronde hyalina seriatim digesta; ad Port Natal, sterilis.

222\*. *Bryopsis setacea*, Hg. Pilis setaceis, subramosis, apice plumosis.

Fila tenacia, nitida, 2—3-pollicaria, setacea, simplicia vel rarius ramulo laterali instructa, apice ramentis brevibus, simplicissimis, lanceolato-pinnata. Color obscurè viridis, chartæ arctè adhæret.

*Bryops. Balbianæ* proxima. *Hab.* ad Port Natal Point, Africæ meridionalis, scopulis littoralibus insidens.

*Caulerpa filiformis*, Hg. Frondibus planis, linearibus, subdichotomis, integerrimis.

Surculus cylindricus, filiformis, stramineus, internè emittens radices fibrosas, fasciculatas; frons spithamæa, adscendens, basi cylindrica, annulato-rugosa, deinde plana, linearis, integerrima, subdichotoma, lineam lata; color gramineus, substantia membranacea.

Synon. *Amphibolis filiformis*, Sch.

Var.  $\beta$ . Fronde latiore ligulata.

Var.  $\gamma$ . Fronde brevior palmata. Forsan distincta species *Caulerpa palmata* nominanda.

Ad Cape Lagullas, Africæ meridionalis, in arena repens.

*Aspidium ericoides*, Hg. Fronde tereti, continua, filiformi, ramosa; ramentis brevibus, subarticulatis, subulatis, densè imbricatis vestita.

Radix callus exiguus, frons spithamæa, teres, ramosa, pyramidata, ramenta obtusiuscula, zonis obscurioribus notata.

*Hab.* ad Port Natal. Sub *Rhodomela ericoides* in collectione signata.

*Sphærococcus (Chondrus) scutellatus*, Hg. Fronde compressa, dichotoma, segmentis linearibus; capsulis sphaericis in margine discoque ramulorum sessilibus, scutellatis.

Habitus *Sphæroc. crispus* var. *linearis*; frons cartilaginea, bipollicaris, vix lineam lata, segmentis superioribus cuneatis, obtusis; color exsiccati atro-purpureus.

*Sphærococcus (Gigartina) nodiferus*, Hg. Fronde cartilaginea, tereti, subdichotoma, segmentis irregulariter dentatis, obtusis, dentibus apice capsuliferis.

Color purpureus, frons crassiuscula.

Ad Port Natal, spec. manca.

*Sphærococcus (Gelidium) aculeatus*, Hg. Fronde cartilagineo-cornea, ramosa, verticillato-aculeata.

Radix callus exiguus, frons cartilagineo-cornea, 4—6-pollicaris, internè teretiuscula, nuda, mox bi- vel trichotoma, lineam crassa, compressa, vel tri- aut quadrangularis, aculeata; aculei oppositi, terni aut quaterni verticillati, lineam longi, basi dilatati, subu-

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lati, horizontales, interstitia bilinearia. Fructus ignoti, color coccineus; exsiccatus rigidus, chartæ minimè adhærens.

*Hab.* ad Port Natal.

272. *Martensia*, gen. nov. Frons plana, areolata, avenia, margine fenestrata; fructus duplex; sphærospermia longitudinaliter in reticulo simplici serie disposita; capsulæ sphæricæ, reticulo affixæ, sporidia subglobosa foveantes.

*M. elegans*, Hg. Fronde tenuissima, lobata, segmentis cuneato-rotundatis.

Frons basi affixa, semi usque pollicaris, tenerrima, tenax, cellulis angulatis areolata, margine demum fructificante, clathrato-fenestrata. Color amœnè roseus fugax. Chartæ arcuè adhærens.

Port Natal ad lapides.

In memoriam amicissimi Georgii de Martens, auctoris Floræ Würtembergicæ, algarum maris Mediterranei scrutatoris indefessi. —Hering.

197. *Nemalion Natalense*, Hg. Fronde filiformi, ramosa, ramis elongatis, villosis, villis articulatis.

Color olivaceus, chartæ arcuè adhærens. *Hab.* ad Port Natal Point, Afr. meridionalis.

*Fucus minimus*, Hg. Fronde plana ecostata, lineari, dichotoma, integerrima.

Vix pollicaris, fronde semilineam lata, spiraliter torta.

Port Natal.

XIII.—*Observations on the Structure of the Pollen Granule, considered principally in reference to its eligibility as a means of Classification.* By ARTHUR HILL HASSALL, M.R.C.S.L., Corresponding Member of the Dublin Natural History Society.

It has often been a matter of surprise to me, that no one of the numerous and gifted votaries of those bright and beautiful creations, flowers, which are scattered with so profuse a hand over moor and mountain, on hill and through dale, should have fully investigated the structure of the pollen granule in the various tribes of plants, with a view to ascertain whether it could be rendered available for the purpose of classification.

Much has indeed been written upon its general anatomy; but the characters of the granules, as they occur in each genus of plants, appear to have been scarcely at all considered in this country, and almost the only figures which we possess of individual pollen grains are contained in Lindley's 'Introduction to Botany,' and were derived from a work of Purkinje on the subject\*.

\* These figures are but little more than mere outlines, and even in this single particular are generally very far from being correct.

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*Hab.* ad Port Natal.

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